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L3: Entry 2 of 20   File: USPT   Aug 7, 2001

US-PAT-NO: 6271926
DOCUMENT-IDENTIFIER: US 6271926 B1

TITLE: Printing system with print job programming capability

DATE-ISSUED: August 7, 2001

INVENTOR-INFORMATION:
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US-CL-CURRENT: 358/1.15; 358/448, 358/468, 358/500, 382/283

CLAIMS:

What is claimed is:

1. In a printing system for producing one or more prints from a document job characterized by an adjustable image processing attribute, a job ticket generating system for generating a job ticket, comprising:

a user interface having a display screen;

a job ticket displayed on the user interface, said job ticket including an original user feedback image, and an electronically based scale settable in a plurality of positions;

an image processing subsystem for altering an appearance of the original user feedback image in response to a change of setting in the electronically based scale, wherein the electronically based scale is set to one of the plurality of positions;

a library of masks, one of the masks being selected from said library of masks based on the one of the plurality of positions set with the electronically based scale, each mask in the library of masks including a pattern of pixels which alter an apparent contrast of at least a portion of the user feedback image when the pattern of pixels is superimposed on the user feedback image; and

said image processing subsystem, in response to setting the electronically based scale to the one of the plurality of positions, superimposing the selected mask to the original user feedback image so as to dynamically obtain an altered user feedback image whose appearance is changed relative to the original user feedback image.

2. The job ticket generating system of claim 1, wherein the adjustable image attribute is adjusted on the basis of the one of the plurality of positions set with the electronically based scale.

3. The job ticket generating system of claim 2, wherein either an image contrast attribute or an image brightness attribute is adjusted.

4. The job ticket generating system of claim 1, in which the printing system includes a workstation communicating with a printing machine by way of a network connection, wherein said user interface is disposed at the workstation for generating said job ticket.

5. The job ticket generating system of claim 1, in which the printing system includes a

workstation communicating with a printing machine by way of a network connection and the document job is developed at the workstation, wherein said user interface is disposed at the printing machine so that said job ticket is modifiable at the printing machine.

6. The job ticket generating system of claim 1, in which the image includes a set of pixels and the set of pixels includes a plurality of gray levels, wherein one of the gray levels is selected and all pixels, in the set of pixels, corresponding with the selected one of the gray levels are isolated.

7. The job ticket generating system of claim 6, wherein said one of the masks is applied to the isolated pixels in both a first pass and a second pass.

8. The job ticket generating system of claim 7, wherein a first logical operation is applied to mask the isolated pixels during the first pass and a second logical operation is applied to mask the isolated pixels in the second pass.

9. The job ticket generating system of claim 8, wherein the altered user feedback image is obtained with the isolated pixels masked by way of the first pass and the second pass.

10. The job ticket generating system of claim 6, wherein the plurality of gray levels is limited to no greater than 16 gray levels.

11. In a printing system for producing one or more prints from a document job characterized by an adjustable image processing attribute, a job ticket generating system for generating a job ticket, comprising:

a user interface having a display screen;

a job ticket displayed on the user interface, said job ticket including an original user feedback image including a set of pixels, the set of pixels including no more than 16 gray levels, and an electronically based scale settable in a plurality of positions;

an image processing subsystem for altering an appearance of the user feedback image in response to a change in the electronically based scale, wherein the electronically based scale is set to one of the plurality of positions; and

said image processing subsystem, in response to the electronically based scale being set the one of the plurality of positions, dynamically altering the original user feedback image in a manner that minimizes memory usage of the printing system.

12. In a printing system for producing one or more prints from a document job including an image portion characterized by an adjustable image processing attribute, a system for adjusting the image processing attribute, comprising:

a user interface having a display screen;

an electronically based scale settable in a plurality of positions and displayable on the user interface screen;

an image processing subsystem for altering an appearance of the document job image in response to a change of setting in the electronically based scale, wherein the electronically based scale is set to one of the plurality of positions;

a library of masks, one of the masks being selected from said library of masks based on the one of the plurality of positions set with the electronically based scale, each mask in the library of masks including a pattern of pixels which alter an apparent contrast of at least a portion of the document job image when the pattern of pixels is superimposed on the document job image; and

said image processing subsystem, in response to setting the electronically based scale to the one of the plurality of positions, superimposing the selected mask on the document job image so as to dynamically adjust the adjustable image processing attribute.

13. The job ticket generating system of claim 12, in which the printing system includes a workstation communicating with a printing machine by way of a network connection and the document job is developed at the workstation, wherein said user interface is

disposed at the _printing_ machine so that said document job image is modifiable at the _printing_ machine.

14. In a _printing_ system for producing one or more prints from a document job characterized by an adjustable image processing attribute, the _printing_ system including a user interface having a display screen with a _job ticket_ displayed thereon, the _job ticket_ including an original user feedback image and an image processing subsystem for altering an appearance of the original user feedback image in response to a change in an electronically based scale, the electronically based scale being settable in a plurality of positions, a method for generating the _job ticket,_ comprising:

adjusting the electronically based scale so that one of the plurality of positions is set;

based on the position set in said adjusting step, selecting a mask from a library of masks, each mask in the library of masks including a pattern of pixels which alter an apparent contrast of at least a portion of the user feedback image when the pattern of pixels is superimposed on the user feedback image; and

superimposing the selected mask on the original user feedback image, with the image processing subsystem, so as to obtain an altered user feedback image whose appearance is changed relative to the original user feedback image.

15. The method of claim 14, further comprising adjusting the adjustable image attribute on the basis of the one of the plurality of positions set in said adjusting step.

16. The method of claim 15, wherein said adjusting includes adjusting either an image contrast attribute or an image brightness attribute.

17. The method of claim 15, in which the printing system includes a workstation communicating with a printing machine by way of a network connection, further comprising disposing the user interface at the workstation for performing said method thereat.

18. The method of claim 15, in which the printing system includes a workstation communicating with a printing machine by way of a network connection and the document job is developed at the workstation, further comprising disposing the user interface at the printing machine so that said method is performable at the printing machine.

19. The method of claim 14, in which the image includes a set of pixels and the set of pixels includes a plurality of gray levels, further comprising selecting one of the gray levels and isolating all pixels, in the set of pixels, corresponding with the selected one of the gray levels.

20. The method of claim 19, wherein said applying step includes applying the mask to the isolated pixels in both a first pass and a second pass.

21. The method of claim 20, further comprising using a first logical operation to mask the isolated pixels during the first pass and a second logical operation to mask the isolated pixels in the second pass.

22. The method of claim 21, wherein said applying step includes obtaining the altered user feedback image with the isolated pixels masked by way of the first pass and the second pass.

23. The method of claim 19, further comprising limiting the plurality of gray levels to no greater than 16 gray levels.

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L3: Entry 5 of 20   File: USPT   Apr 18, 2000

US-PAT-NO: 6052198
DOCUMENT-IDENTIFIER: US 6052198 A

TITLE: Method for organizing raster image processor files associated with a job ticket used in a network printing system

DATE-ISSUED: April 18, 2000

INVENTOR-INFORMATION:

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US-CL-CURRENT: 358/1.15; 271/279, 271/298, 358/1.13, 358/1.16, 358/1.9, 358/296, 358/401

CLAIMS:

What is claimed is:

1. A method of organizing files associated with a job ticket, including Raster Image Processor (RIP) files, wherein the files and job ticket are in a storage device attached to a computer system, comprising the steps of:

(a) creating a job ticket, wherein the job ticket includes:

(1) information on a plurality of print files included in a print job, wherein the print files include data representing graphical images;

(2) print file location information indicating a location of the print files in the storage device; and

(3) RIP file location information indicating a location of a RIP version of a print file in the storage device, wherein the RIP version is generated from the print file;

(b) submitting the job ticket for printing, including the steps of:

(1) accessing a print file in the location indicated in the print file location information;

(2) determining whether there is a RIP version of the accessed print file; and

(3) transmitting the RIP version of the accessed print file from the location indicated in the RIP file location information to a printer upon determining that there is a RIP version of the accessed print file.

2. The method of claim 1, wherein the step of submitting the job ticket further includes the step of determining whether the RIP version was modified after the accessed print file was modified upon determining that there is a RIP version of the accessed print file; and wherein the step of transmitting the RIP version occurs upon determining that the RIP version was modified after the accessed print file was modified.

3. The method of claim 2, further including the steps of:

generating a RIP version from the accessed print file upon determining at least one of the following: (1) that the RIP version was modified before the accessed print file was modified and (2) that there is no RIP version of the print file in the storage device; and

transmitting the RIP version to the printer upon generating the RIP version from the accessed print file.

4. The method of claim 3, wherein the computer system is comprised of a first computer, a second computer, and a network linking the first computer, the second computer, the printer, and the storage device, wherein the first computer performs the steps of creating the job ticket and submitting the job ticket for printing, and wherein the second computer performs the steps of generating the RIP version and transmitting the RIP version to the printer upon generating the RIP version.

5. The method of claim 3, further comprising the steps of:

saving the RIP version in the storage device after generating the RIP version from the accessed print file; and

indicating a location of the generated RIP version in the storage device in the RIP file location information.

6. The method of claim 1, wherein the print file is in a format which is a member of the set of formats comprising PostScript, TIFF, PDF, and PCL.

7. The method of claim 1, wherein the storage device is comprised of a first storage device and a second storage device linked to the computer system, wherein the print file is stored in the first storage device and the RIP version of the print file is stored in the second storage device.

8. The method of claim 1, further comprising the step of determining whether a user has indicated to not submit the RIP version of the print file in the location indicated in the location information, and wherein the step of transmitting the RIP version does not occur if the user has indicated to not submit the RIP version.

9. The method of claim 8, wherein a monitor and input device are attached to the computer system, and wherein the step of determining whether the user indicated to not submit the RIP version further comprises the step of displaying a field on the monitor in which the user indicates with the input device whether to not submit the RIP version of the print file in the location indicated in the RIP file location information.

10. The method of claim 9, wherein the step of determining whether the user indicated to not submit the RIP version, further comprises the steps of:

displaying on the monitor information on the accessed print files included in the print job; and

displaying on the monitor information indicating whether to submit the RIP version of the print file in the location indicated in the RIP file location information to the printer.

11. The method of claim 10 wherein the information is displayed in a GUI displayed on the monitor.

12. A computer programming apparatus, comprising:

(a) a computer system having a memory;

(b) a storage device attached to the computer system;

(c) means, performed by the computer system, for creating a job ticket, wherein the job ticket includes:

(1) information on a plurality of print files included in a print job, wherein the print files include data representing graphical images;

(2) print file location information indicating a location of the print files in the storage device; and

(3) Raster Image Processor (RIP) file location information indicating a location of a RIP version of a print file in the storage device, wherein the RIP version is generated from the print file;

(b) means, performed by the computer system, for submitting the job ticket for printing, including:

(1) means for accessing a print file in the location indicated in the print file location information;

(2) means for determining whether there is a RIP version of the accessed print file; and

(3) means for transmitting the RIP version of the accessed print file from the location indicated in the RIP file location information to a printer upon determining that there is a RIP version of the accessed print file.

13. .The apparatus of claim 12, wherein the means for submitting the job ticket further includes means for determining whether the RIP version was modified after the accessed print file was modified upon determining that there is a RIP version of the accessed print file; and wherein the means for transmitting the RIP version transmits the RIP version upon determining that the RIP version was modified after the accessed print file was modified.

14. The apparatus of claim 13, further including:

means, performed by the computer system, for generating a RIP version from the accessed print file upon determining at least one of the following: (1) that the RIP version was modified before the accessed print file was modified and (2) that there is no RIP version of the print file in the storage device; and

means, performed by the computer system, for transmitting the RIP version to the printer upon generating the RIP version from the accessed print file.

15. The apparatus of claim 14, wherein the computer system is comprised of a first computer, a second computer, and a network linking the first computer, the second computer, the printer, and the storage device, wherein the first computer includes the means for creating the job ticket and submitting the job ticket for printing, and wherein the second computer includes the means for generating the RIP version and transmitting the RIP version to the printer upon generating the RIP version.

16. The apparatus of claim 14, further comprising:

means, performed by the computer system, for saving the RIP version in the storage device after generating the RIP version from the accessed print file; and

means, performed by the computer system, for indicating a location of the generated RIP version in the storage device in the RIP file location information.

17. The apparatus of claim 12, wherein the print file is in a format which is a member of the set of formats comprising PostScript, TIFF, PDF, and PCL.

18. The apparatus of claim 12, wherein the storage device is comprised of a first storage device and a second storage device linked to the computer system, wherein the print file is stored in the first storage device and the RIP version of the print file is stored in the second storage device.

19. The apparatus of claim 12, further including:

means, performed by the computer system, for determining whether a user has indicated to not submit the RIP version of the print file in the location indicated in the location information, and wherein the means for transmitting the RIP version does not transmit the RIP version when the user has indicated to not submit the RIP version.

20. The apparatus of claim 19, further comprising:

a monitor attached to the computer system;

an input device attached to the computer system; and

wherein the means for determining whether the user indicated to not submit the RIP version of the print file further comprises means for displaying a field on the monitor in which the user indicates with the input device whether to not submit the RIP version of the accessed print file in the location indicated in the RIP file location information.

21. The apparatus of claim 20, wherein the means for determining whether the user indicated to not submit the RIP version, further comprises:

means for displaying on the monitor information on the accessed print files included in the print job; and

means for displaying on the monitor information indicating whether to submit a RIP version of the print file in the location indicated in the RIP file location information.

22. .The apparatus of claim 21 further including, means, performed by the computer, for displaying the information in a GUI displayed on the monitor.

23. An article of manufacture for use in programming a computer, the article of manufacture comprising a computer readable storage medium having a computer program embodied therein that causes the computer to perform the steps of:

(a) creating a job ticket, wherein the job ticket includes:

(1) information on a plurality of print files included in a print job, wherein the print files include data representing graphical images;

(2) print file location information indicating a location of the print files in the storage device; and

(3) Raster Image Processor (RIP) file location information indicating a location of a RIP version of a print file in the storage device, wherein the RIP version is generated from the print file;

(b) submitting the job ticket for printing, including the steps of:

(1) accessing a print file in the location indicated in the print file location information;

(2) determining whether there is a RIP version of the accessed print file; and

(3) transmitting the RIP version of the accessed print file from the location indicated in the RIP file location information to a printer upon determining that there is a RIP version of the accessed print file.

24. The article of manufacture of claim 23, wherein the step of submitting the job ticket further includes the step of determining whether the RIP version was modified after the accessed print file was modified upon determining that there is a RIP version of the accessed print file; and wherein the step of transmitting the RIP version occurs upon determining that the RIP version was modified after the accessed print file was modified.

25. The article of manufacture of claim 24, further including the steps of:

generating a RIP version from the accessed print file upon determining at least one of the following: (1) that the RIP version was modified before the accessed print file was modified and (2) that there is no RIP version of the print file in the storage device; and

transmitting the RIP version to the printer upon generating the RIP version from the accessed print file.

26. The article of manufacture of claim 25, wherein the computer system is comprised of a first computer, a second computer, and a network linking the first computer, the

second computer, the printer, and the storage device, wherein the first computer performs the steps of creating the <u>job ticket</u> and submitting the <u>job ticket for printing,</u> and wherein the second computer performs the steps of generating the RIP version and transmitting the RIP version to the printer upon generating the RIP version.

27. The article of manufacture of claim 24, further comprising the steps of:

saving the RIP version in the storage device after generating the RIP version from the accessed print file; and

indicating a location of the generated RIP version in the storage device in the RIP file location information.

28. The article of manufacture of claim 23, wherein the print file is in a format which is a member of the set of formats comprising PostScript, TIFF, PDF, and PCL.

29. The article of manufacture of claim 23, wherein the storage device is comprised of a first storage device and a second storage device linked to the computer system, wherein a print file is stored in the first storage device and a RIP version of the print file is stored in the second storage device.

30. The article of manufacture of claim 23, further comprising the step of determining whether a user has indicated to not submit the RIP version of the print file in the location indicated in the location information, and wherein the step of transmitting the RIP version does not occur if the user has indicated to not submit the RIP version.

31. The article of manufacture of claim 30, wherein a monitor and input device are attached to the computer system, and wherein the step of determining whether the user indicated to not submit the RIP version further comprises the step of displaying a field on the monitor in which the user indicates with the input device whether to not submit the RIP version of the print file in the location indicated in the RIP file location information.

32. The article of manufacture of claim 31, wherein the step of determining whether the user indicated to not submit the RIP version, further comprises the steps of:

displaying on the monitor information on the accessed print files included in the print job; and

displaying on the monitor information indicating whether to submit a RIP version of the print file in the location indicated in the RIP file location information to the printer.

33. The article of manufacture of claim 32 wherein the information is displayed in a GUI displayed on the monitor.

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L3: Entry 12 of 20   File: USPT   Apr 8, 1997

US-PAT-NO: 5619649
DOCUMENT-IDENTIFIER: US 5619649 A

TITLE: Network printing system for programming a print job by selecting a job ticket identifier associated with remotely stored predefined document processing control instructions

DATE-ISSUED: April 8, 1997

INVENTOR-INFORMATION:

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US-CL-CURRENT: 358/1.15; 358/1.1, 708/173, 709/229, 710/5

CLAIMS:

What is claimed is:

1. In a network printing system for creating a document job at a document processing apparatus to be transmitted across a network to an output or storage location disposed remotely of the document processing apparatus the document job being developed In accordance with a job ticket including a set of document processing control instructions for controlling a manner in which the document processing apparatus develops a set of image data for creating the document job, the job ticket having been developed at a processing station disposed on the network remotely of the document processing apparatus and corresponding to a selected job ticket identifier with both the job ticket and selected job ticket identifier being stored in a memory disposed on the network remotely of the document processing apparatus, said document processing apparatus comprising:

a) an input subsystem for inputting a personal identifier to the document processing apparatus;

b) a user interface for displaying, in response to the inputting of the personal identifier a job ticket identifier directory including a plurality of job ticket identifiers one of which plurality of job ticket identifiers includes the selected job ticket identifier, the user interface and input subsystem functioning cooperatively to permit the user to employ the selected job ticket identifier for facilitating transmission of a copy of the set of document processing control instructions to the document processing apparatus;

c) a document processing apparatus memory for storing the set of document processing control instructions;

d) an information retrieval subsystem for retrieving a copy of the set of document processing control instructions across the network from the remotely disposed memory to said document processing apparatus memory in response to selecting the selected job ticket identifier from the job ticket identifier directory;

e) an image capture subsystem for developing the set of Image data, the image data being automatically developed in a preprogrammed manner, in accordance with the set of document processing control instructions stored in said document processing apparatus

memory, to create the document job while minimizing an amount of job programming required by the user at said document processing apparatus; and

f) an image data transmission subsystem for transmitting one or more copies of said set of image data across the network for storage at the storage location or outputting at the output location.

2. The document processing apparatus of claim 1, In which the document processing control instructions include a plurality of job attributes characterized by a set of values, further including:

g) a programming subsystem for reprogramming the document processing control instructions, wherein the set of values is displayed with said programming subsystem and the set of values is modified to vary one of the plurality of job attributes.

3. The document processing apparatus of claim 1, in which a network memory area is disposed remotely of said document processing apparatus on the network, wherein a copy of the set of image data along with a copy of a subset of the document processing control instructions are stored in the network memory area for outputting a representation of the set of image data.

4. The document processing apparatus of claim 3, in which the network memory area communicates with an output subsystem, wherein the representation of the copy of the set of image data is outputted with the output subsystem.

5. The document processing apparatus of claim 4, In which the output subsystem is disposed on the network remotely of said document processing apparatus, wherein said document processing apparatus includes an output subsystem for outputting a representation of the copy of the set of image data so that representations of the copy of the set of image data are outputted at the output subsystem of the document processing apparatus and the output subsystem disposed on the network.

6. The document processing apparatus of claim 1, In which the set of image data is developed from a hardcopy document and said document processing apparatus includes a subsystem for reading the hardcopy document and converting contents thereof to the set of image data.

7. The document processing apparatus of claim 6, in which a network memory area is disposed remotely of said document processing apparatus on the network, wherein a copy of the set of image data along with a copy of a subset of the document processing control instructions are stored in the network memory area for outputting a representation of the set of image data.

8. The document processing apparatus of claim 7, in which the network memory area communicates with an output subsystem, wherein the representation of the copy of the set of image data is outputted with the output subsystem.

9. The document processing apparatus of claim 7, wherein;

the copy of the set of image data is stored in the network memory area

the hardcopy document is scanned with a character recognition program to determine a distribution of word occurrences in the hardcopy document; and

the determined distribution is stored in the network memory area for employment by a document processing system user in locating the copy of the set of image data in the network memory area.

10. The document processing apparatus of claim 1, wherein the set of image data is analyzed with a character recognition program and the selected job ticket identifier is selected on the basis of results obtained from said analysis.

11. The document processing apparatus of claim 1, wherein the image capture subsystem is part of a page description language decomposer and the set of image data is developed by processing an electronic document corresponding with the document job.

12. The document processing apparatus of claim 1, wherein the processing station is disposed on the network remotely of the memory disposed on the network.

13. In a network <u>printing</u> system where a document job is developed in accordance with a <u>job ticket</u> including a set of document processing control instructions for controlling a manner in which a document processing apparatus develops a set of image data for creating the document job, the <u>job ticket</u> having been developed at a processing station disposed on a network remotely of the document processing apparatus and corresponding to a selected <u>job ticket</u> identifier with both the <u>job ticket</u> and selected <u>job ticket</u> identifier being stored in a memory disposed on the network remotely of the document processing apparatus, a method of creating the document job at the document processing apparatus and transmitting the document job across the network to an output or storage location disposed remotely of the document processing apparatus, comprising:

a) inputting a personal identifier to the document processing apparatus:

b) in response to said step a), displaying a job ticket identifier directory including a plurality of job ticket identifiers one of which plurality of job ticket identifiers includes the selected job ticket identifier;

c) selecting the selected job ticket identifier from the job ticket identifier directory;

d) in response to said step c), retrieving a copy of the set of document processing control instructions across the network from the remotely disposed memory to a document processing apparatus memory:

e) storing the set of document processing control instructions in the document processing apparatus memory;

f) developing the set of image data automatically in a preprogrammed manner, with an image capture subsystem, in accordance with the set of document processing control instructions stored in the document processing apparatus memory, to create the document job while minimizing an amount of programming required by the user at the document processing apparatus; and

g) transmitting one or more copies of the set of image data across the network for storage at the storage location or outputting at the output location.

14. The method of claim 13, in which a network memory area is disposed remotely of the document processing apparatus on the network further comprising storing a copy of the set of image data along with a copy of a subset of the document processing control instructions in the network memory area for outputting a representation of the set of image data.

15. The method of claim 14, in which the set of image data is developed from a hardcopy document further comprising reading the hardcopy document with a document reading subsystem and converting contents of the hardcopy document to the set of image data.

16. The method of claim 13, further comprising analyzing the set of image data with character recognition program so that the selected job ticket identifier is selectable on the basis of results obtained with said analysis.